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10/526,864

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Alan G. Knapp

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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BRIARCLIFF MANOR, NY 10510

EXAMINER

WALTHALL, ALLISON N

ART UNIT

PAPER NUMBER

2629

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DELIVERY MODE

04/13/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/526,864 | Applicant(s) KNAPP ET AL. | |
| | Examiner ALLISON WALTHALL | Art Unit 2629 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-12 and 18-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-8 and 18-24 is/are rejected.
- 7) ☒ Claim(s) 9-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 16, 2010 has been entered.

Claim Objections

2. Claims 3, 5-9, and 23 are objected to for the following informalities:

Claims 3 and 5-8 depend from cancelled claim 2. For the purpose of examination, the examiner has treated claims 3, 7, and 8 as depending from claim 1 (claim 5 then being properly dependent from claim 3, and claim 6 properly dependent from claim 5).

Claim 7 and claim 23 read "...maximum brightness level to which any pixel is **drive**..." which the examiner interprets as a typographical error meaning "...maximum brightness level to which any pixel is **driven**...."

Claim 9 reads "...and wherein the first **the** drive transistor" which the examiner interprets as a typographical error meaning "...and wherein the first drive transistor."

Claim 9 also reads "...being variable in dependence on the **on the** combined brightness level" which the examiner interprets as a typographical error meaning "...being variable in dependence on the combined brightness level."

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4, 8, 18, 19, 21-22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (US Publication 2002/0036716) in view of Kimura (6,518,962) and Naito (US Patent 6,462,735).

As to **claims 1 and 18**, Ito teaches (figure 8) means for determining a combined brightness level (e.g. average value) of a multitude of pixels in an image to be displayed in a frame period (see [0065]); and

a signal processing device for determining an combined brightness level and for processing the input signals (Yi) for the pixels in dependence on the combined brightness level (see [0068], figures 10A and 10B, and [0074--0080]),

wherein the signal processing device is adapted to employ gamma characteristics (gamma correction see [0068]) for processing the input signals (Yi) in dependence on the combined brightness level (e.g. average value), wherein said gamma characteristics are altered by a generator to set a certain maximum brightness level depending on the combined brightness level (i.e. the gamma curve L21 of Figure 10A is used where the average value is relatively high, while the gamma curve L22 of

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Figure 10B is used where the average value is relatively low, see [0075 and 0077], see also figures 4A, 4B, and 5)

Ito does not specifically teach an electroluminescent (EL) display element; active matrix circuitry including at least one drive transistor for driving a current through the display element; means for controlling the at least one drive transistor of each pixel individually in dependence on a respective input signal providing a drive level for the pixel and in dependence on the combined brightness level of the multitude of pixels in the image, wherein the means for controlling the at least one drive transistor comprises the signal processing device.

Kimura teaches (figure 1) an electroluminescent display element (224), an active matrix circuitry including at least one drive transistor (223) for driving a current through the display element (column 20, lines 50-57); and means for controlling the at least one drive transistor of each pixel individually in dependence on a respective input signal (i.e. each pixel receives its own respective display data) providing a drive level for the pixel (see figure 6, column 23, lines 39-46 and column 23, line 61-column 24, line 14), wherein the means for controlling the at least one drive transistor comprises a signal processing device (12, 22c). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the EL element and drive transistor of Kimura in the dynamic gamma correction apparatus of Ito, in order to provide a display panel with high resolution, wide viewing angle, and low power consumption (see Kimura, column 1, lines 59-64). Since Ito teaches modifying the input signal (V_i) in dependence on the combined brightness level of the multitude of pixels in the image,

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the combination of Ito and Kimura teaches the drive transistor of each pixel individually is controlled in dependence on the input signal and the combined brightness level.

Ito also does not teach the gamma characteristics comprising specifically a gamma correction LUT altered by a LUT generator. Naito teaches gamma curve characteristics are conventionally stored in a look up table form (see column 2, lines 22-28 and column 11, lines 16-23). Therefore the gamma correction calculating section of Ito may be stored in table form and altered by the correction start point control section for example. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a LUT as taught by Naito for the gamma characteristics of Ito as modified by Kimura, in order to provide accurate brightness and contrast characteristics for the display device.

As to **claims 8 and 24**, Naito teaches the signal processing device comprises digital to analogue converter circuitry (D/A conversion block 260) for converting digital inputs into the input signal which includes gamma correction characteristics. Therefore the gamma correction of Ito may be incorporated in a D/A conversion circuitry as taught by Naito and since the gamma correction depends on the combined brightness level, the digital to analogue converter circuitry is controllable in dependence on the combined brightness level.

As to **claim 19**, Ito as modified by Kimura teaches controlling the at least one drive transistor comprises processing the input signals for the pixels in dependence on the combined brightness level and then applying the processed input signals to the

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pixels (i.e. Kimura teaches the drive transistor and Ito teaches processing input signals in dependence on the combined brightness level).

As to **claim 21**, Ito as modified by Naito to provide gamma correction with a LUT teaches processing the input signal comprising modifying the input signals using a look up table, the address of which is selected in dependence on the input signal and the combined brightness level (see Naito column 11, lines 16-23).

As to **claim 22**, Ito teaches the processing of the input signals is performed by employing gamma characteristics of the array of display elements ([0002-0003]).

5. Claims 3, 5-7, 20 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Kimura and Naito, as applied to claims 1 and 18 above, and further in view of Mori (US Publication 2003/0025718).

As to **claims 3 and 20**, Ito teaches determining an average value which generally requires summation, however Ito does not specifically teach a field store for storing the input signals for an image, and a summation unit for summing the input signals for the multitude of pixels of the image in the field store to determine the combined brightness.

However, Mori discloses a signal processing device comprises a field store (frame memory 4) for storing the input signals for an image (see [0036]); and a summation unit (Brightness Detection Unit which detects using an integrator to determine the brightness information of the input video signal, paragraph [0038]) for summing the input signals for the multitude of pixels of the image in a field store (Frame

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memory 4) to determine the combined brightness. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the field store of Mori in the signal processing device of Ito as modified by Kimura and Naito, in order to conduct digital ABL processing (see [0134]).

As to **claim 5 and 23**, Mori discloses wherein the signal processing device further comprises a look up table (Table used to conduct calculations, Page 7 paragraphs [0113]-[0114]) for modifying the input signals for the stored image in dependence on the combined brightness level.

As to **claim 6**, Mori discloses wherein the signal processing device is adapted to calculate the look-up table in dependence on the combined brightness level (Page 7 paragraphs [0113]-[0114]).

As to **claim 7**, Mori discloses wherein the signal processing device operates to reduce the maximum brightness level to which any pixel is drive in response to an increase in the combined brightness of an image (The display panel brightness level is reduced if the mean brightness is high, Page 3 paragraph [0044]).

Allowable Subject Matter

6. Claims 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments submitted 2/16/2010 have been considered but are moot in view of the new ground(s) of rejection. In view of amendments, the references of Ito and Naito have been added for new grounds of rejection.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLISON WALTHALL whose telephone number is (571)270-3571. The examiner can normally be reached on Mon-Fri 9:30-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571)272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

anw
April 7, 2010

/Chanh Nguyen/
Supervisory Patent Examiner, Art
Unit 2629

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